

Information Relevant to Columbia River Fisheries
Provided by the Oregon and Washington Department of Fish and Wildlife Staffs
For the Columbia River Fisheries Working Group
October 18, 2012

- Attachment 1. Harvest of salmon in the Columbia River, Select Areas and tributaries
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Attachment 1.

Mainstem Columbia River								
Number of Fish Harvested - Washington and Oregon Combined								
	Spring Chinook		Summer Chinook		Fall Chinook		Coho	
	Sport	Commercial	Sport	Commercial	Sport	Commercial	Sport	Commercial
2005	11,700	5,400	4,200	2,800	38,600	27,500	9,000	32,400
2006	8,200	4,400	9,100	4,800	21,400	26,000	6,700	28,400
2007	7,800	3,000	6,300	1,100	19,200	12,200	12,900	30,200
2008	22,200	6,000	5,700	1,400	27,900	28,100	13,900	13,100
2009	17,200	4,200	4,800	2,400	30,900	35,000	57,900	45,200
2010	32,700	9,000	5,100	4,700	42,100	31,100	13,500	18,900
2011	14,000	4,500	10,800	5,000	54,900	51,400	13,200	13,500
Average	16,300	5,200	6,600	3,200	33,600	30,200	18,200	26,000

Tributaries and SAFE								
Number of Fish Harvested - Washington and Oregon Combined								
	Spring Chinook		Summer Chinook		Fall Chinook		Coho	
	Sport	Commercial	Sport	Commercial	Sport	Commercial	Sport	Commercial
2005	20,300	2,300	400	100	12,700	8,700	12,300	65,800
2006	26,600	6,800	200	500	11,700	4,600	18,400	37,700
2007	20,500	6,500	100	300	5,800	4,500	25,400	10,500
2008	14,100	3,500	100	1,000	6,500	14,000	43,300	55,200
2009	17,700	3,200	300	1,000	11,400	12,000	43,000	81,000
2010	56,500	23,900	200	1,000	11,900	20,700	26,000	58,800
2011	46,800	9,300	200	1,800	15,500	22,900	25,200	49,500
Average	28,900	7,900	200	800	10,800	12,500	27,700	51,200

Total - Mainstem and Tributaries (including SAFE)								
Number of Fish Harvested - Washington and Oregon Combined								
	Spring Chinook		Summer Chinook		Fall Chinook		Coho	
	Sport	Commercial	Sport	Commercial	Sport	Commercial	Sport	Commercial
2005	31,900	7,700	4,600	2,900	51,300	36,200	21,300	98,200
2006	34,800	11,200	9,400	5,300	33,100	30,600	25,100	66,000
2007	28,400	9,500	6,400	1,400	25,000	16,700	38,300	40,700
2008	36,200	9,400	5,900	2,400	34,400	42,000	57,100	68,300
2009	34,900	7,400	5,100	3,400	42,200	47,000	101,000	126,200
2010	89,200	33,000	5,300	5,700	54,000	51,800	39,400	77,700
2011	60,800	13,800	11,000	6,800	70,400	74,300	38,400	63,000
Average	45,200	13,100	6,800	4,000	44,400	42,700	45,800	77,100

Attachment 2.

Angler Trips Below Bonneville Dam			
	Spring Chinook	Summer Chinook	Fall Chinook
2005	124,700	38,500	86,600
2006	86,800	43,800	89,300
2007	83,000	39,800	79,800
2008	103,000	51,300	80,800
2009	146,400	63,200	118,000
2010	186,100	70,700	114,300
2011	154,900	75,800	147,000

Average Price Per Pound Paid for Salmon					
Mainstem - OR Tickets Only					
	Spring Chinook	Summer Chinook	Fall Chinook Brights	Tules	Coho
2007	\$ 7.50	\$ 2.89	\$ 2.45	\$ 0.43	\$ 1.71
2008	\$ 7.59	\$ 3.00	\$ 2.28	\$ 0.53	\$ 1.91
2009	\$ 6.99	\$ 2.53	\$ 2.13	\$ 0.47	\$ 1.17
2010	\$ 6.11	\$ 3.28	\$ 2.19	\$ 0.55	\$ 1.51
SAFE - OR Tickets Only					
	Spring Chinook	Fall Chinook Brights	Tules	Coho	
2007	\$ 4.79	\$ 2.45	\$ 0.43	\$ 1.71	
2008	\$ 5.85	\$ 2.89	\$ 0.64	\$ 1.31	
2009	\$ 4.40	\$ 1.88	\$ 0.64	\$ 1.22	
2010	\$ 4.87	\$ 2.00	\$ 0.63	\$ 1.36	

Attachment 2.

Columbia River Commercial Fisheries - Ex-Vessel Value Combined WA/OR Commercial Landings					
Mainstem Columbia River					
	Spring Chinook	Summer Chinook	Fall Chinook	Sockeye	Coho
2005	\$353,300	\$107,600	\$665,400	\$0	\$351,600
2006	\$386,300	\$228,500	\$928,900	\$0	\$421,000
2007	\$362,700	\$67,100	\$461,100	\$0	\$451,300
2008	\$623,400	\$76,500	\$1,147,700	\$1,500	\$208,000
2009	\$364,900	\$117,600	\$1,303,300	\$1,700	\$430,600
2010	\$700,800	\$267,600	\$1,150,200	\$0	\$310,400
2011	\$389,800	\$266,200	\$1,709,800	\$700	\$209,000
Select Areas					
	Spring Chinook	Summer Season	Fall Chinook	Sockeye	Coho
2005	\$100,300	\$3,500	\$134,200	\$0	\$715,300
2006	\$387,000	\$17,100	\$122,800	\$0	\$504,900
2007	\$486,000	\$18,200	\$129,600	\$0	\$114,200
2008	\$286,400	\$59,200	\$467,900	\$0	\$682,200
2009	\$194,500	\$49,000	\$271,700	\$0	\$886,400
2010	\$1,376,800	\$46,000	\$418,900	\$0	\$715,500
2011	\$748,300	\$87,200	\$620,200	\$0	\$692,000

Attachment 3.

Columbia River Treaty Indian Fishery					
Number of Fish Sold to Licensed Buyers in Washington					
	Spring Chinook	Summer Chinook	Fall Chinook	Sockeye	Coho
2005	-	3,900	71,800	700	1,900
2006	100	9,200	46,200	-	4,900
2007	-	3,500	30,000	-	6,300
2008	6,800	5,800	56,400	2,600	16,100
2009	4,600	8,600	58,000	6,200	6,200
2010	22,700	11,100	107,100	17,600	8,600
2011	10,000	19,700	97,200	7,800	21,200

Columbia River Treaty Indian Fishery					
	Ex-Vessel Value of Fish Sold to Licensed Buyers in Washington				
	Spring	Summer	Fall		
	Chinook	Chinook	Chinook	Sockeye	Coho
2005	\$ 100	\$ 112,900	\$ 639,800	\$ 4,100	\$ 3,600
2006	\$ 5,200	\$ 414,900	\$ 1,227,200	\$ -	\$ 27,900
2007	\$ 400	\$ 199,300	\$ 981,000	\$ -	\$ 44,100
2008	\$ 482,400	\$ 361,600	\$ 1,539,200	\$ 12,200	\$ 148,200
2009	\$ 190,500	\$ 374,600	\$ 1,073,300	\$ 33,400	\$ 29,700
2010	\$ 1,200,600	\$ 571,900	\$ 2,258,900	\$ 77,700	\$ 84,200
2011	\$ 489,000	\$ 959,700	\$ 2,991,800	\$ 67,000	\$ 259,900

Most fish are sold in Washington.

Does not include fish sold to public or taken home for subsistence.

Attachment 4.

ESA Impact Rates for Non-Indian Fisheries 2009-2011				
In-River Fisheries Only				
	Upriver Spring Chinook	Lower Columbia (tule) Fall Chinook	Snake River Wild Fall Chinook	Coho
Actual Impact	1.5%-2.0%	6%-11%	8.1%-13.6%	7.7%-10.5%
Allowed Impact	1.9%-2.2%	5.6%-8.1%*	8.25%-15%	3.8%-7.5%*

*Allowed impact represents Columbia River fisheries only

- Upriver spring Chinook include Snake River spring/summer Chinook and Upper Columbia spring Chinook Evolutionarily Significant Units (ESU)
- Lower Columbia tule fall Chinook are the wild/natural tule component of the Lower Columbia Chinook ESU
- Upriver Bright (URB) fall Chinook are the surrogate for the Snake River Wild fall Chinook ESU
- Lower Columbia coho ESU include populations downstream from Bonneville Dam and a few populations upstream of Bonneville Dam

Attachment 5.

Synopsis of Release Mortality Rates Used in Columbia River Fisheries Management

- There have been two comprehensive release mortality studies conducted in the Columbia River basin that the *U.S. v Oregon* Technical Advisory Committee (TAC) uses in analyzing fishery impacts.
 - Spring Chinook tangle net – commercial
 - Willamette spring Chinook – sport
- Spring Chinook Tangle Net Study
 - Conducted during 2001-2003
 - Used jaw tags in all years and PIT tags in 2003
 - TAC considered the PIT tag results to be the most robust to use for fishery management
 - Large sample size
 - PIT tags recovered at most dams on Columbia River/Snake River
 - Immediate survival was 100% in 2003
 - Initial results produced 18.5% long-term mortality rate
 - Updated results produced 14.7% long-term mortality rate
 - Final results produced 12.8% long-term mortality rate
 - TAC is currently using 14.7% mortality rate for spring Chinook and will be adjusting that to reflect the final results (12.8%) but will include immediate release mortality rates from the states' on-board monitoring
- Willamette Spring Chinook Study
 - Conducted over five years using professional guides to catch fish
 - Overall mortality rate was 12.2%
 - Mortality rate was dependent on where the fish was hooked and type of bait used
 - TAC reviewed the results to ascertain whether these results could be used in the Columbia River
 - Would need to do a fishery profile of the fishery – what type of bait/lures are used in Columbia River
 - TAC did not use these results to represent Columbia River sport fisheries
- TAC is currently using the mortality rates shown on the following page for fishery management
 - The sport fishery mortality rate of 10% is from a literature review conducted by TAC in the 1980s – there are no specific studies for sport fishing release mortality rates in the Columbia River that TAC is aware of
 - The commercial mortality rates used (except for the tangle net rate) are partially based on observations of immediate mortality rates plus an estimate of long-term mortality

Attachment 5.

- Many of the rates used are based on a consensus of opinions from the TAC biologists based on reviews of studies
- NOAA Fisheries has accepted release mortality rates from TAC as appropriate for estimating impacts to ESA-listed stocks.

Mortality rates used in management of Columbia/Lower Willamette River fisheries

Commercial Release Mortality Rates

1. Winter/Spring Commercial Seasons

- Tangle net (4.25" mesh) – 14.7% for Chinook and 18.5% for steelhead
- Large mesh (8-9" mesh) – 40% for Chinook and 30% for steelhead
- Sturgeon (9-9 3/4" mesh) – 40% for Chinook and 30% for steelhead

The release mortality rates shown above were determined by a review of the pertinent data by the TAC. As new or updated information becomes available, adjustments to these mortality rates may occur.

2. Summer Commercial Season

- Large Mesh (8-9") – 59% for steelhead
 - Large mesh minimizes handle of steelhead

3. Shad Commercial Season

- 5.375-6.25" mesh, 10 pound breaking strength
- Chinook: 8.6% immediate + 10% release
- Steelhead: 50% + 10% release
- Sockeye: 19.2% + 10% release

4. Fall Commercial Season

- Large Mesh (8-9") – 59% (49% immediate + 10% release) for steelhead
 - Large mesh minimizes handle of steelhead
- Small Mesh – coho (6") – 66% for steelhead
 - Fishing timed during low steelhead abundance
- Sturgeon (9-9 3/4") – 59% for steelhead
 - Large mesh minimizes handle of steelhead

Sport Release Mortality Rates

1. Winter/Spring

- Chinook: 10% in mainstem Columbia River
- Chinook: 12.2% in lower Willamette River
- Steelhead: 10% all areas

Attachment 5.

2. Summer

- Chinook: 15% (when mark-selective)
- Steelhead: 10%
- Sockeye: 10%

3. Fall

- Buoy 10
 - Chinook/steelhead – 10%
 - Coho – 21%
- Mainstem
 - Chinook (non MSF) – 10%
 - Coho/steelhead - 10%
- Chinook (MSF 2012) – 21%

Most information is taken from the “Biological Assessment of Incidental Impacts on Salmon Species Listed Under the Endangered Species Act in the 2008-2017 Non-Indian and Treaty Indian Fisheries in the Columbia River Basin.” Prepared by the US v Oregon Technical Advisory Committee. April 21, 2008.

Management Tools for Managing Commercial Fisheries

- Spring Chinook Fishery
 - Test fishing is conducted prior to setting a commercial fishery
 - Commercial fishing is conducted with tangle nets for optimum release of wild Chinook and steelhead
 - Commercial fishing is conducted after test fishing shows favorable Chinook/steelhead ratios
 - The fishery is monitored with on-board observers. Information collected includes:
 - Number of hatchery Chinook kept and number released
 - Number of steelhead released and whether they were hatchery or wild
 - The ratios observed with the on-board monitoring is applied to the landed catch of Chinook to expand for total Chinook released and total steelhead released

Attachment 5.

Table 11. Wild Winter Steelhead Minimum Run Size Estimate and Forecast, 2001-2012.

Year	Min.	Non-Indian Release Mortalities				Forecast
	Col R	Mainstem		Tributary ¹		
	Return	Comm.	Sport	Sport	Escapement	
2001	21,825	100	22	165	21,538	--
2002	33,711	3095	34	403	30,180	--
2003	23,452	217	23	308	22,904	15,500
2004	29,566	238	30	334	28,964	32,200
2005	14,672	77	15	170	14,410	27,000
2006	16,708	14	17	403	16,274	16,000
2007	15,072	75	15	363	14,619	16,100
2008	13,943	9	14	300	13,620	15,300
2009	11,575	4	11	292	11,268	15,200
2010	20,035	89	19	248	19,679	20,100
2011	16,752	35	17	214	16,486	
2012						15,300

¹ Washington tributaries only. Data based on historical exploitation rates and may not reflect actual impacts.

- Summer Chinook Fishery
 - Large mesh used to target Chinook and minimize steelhead and sockeye
- Late August Upriver Bright Target Fishery
 - Conducted upstream of the Lewis River in Zones 4-5
 - Upriver bright Chinook include surplus hatchery fish destined above Bonneville Dam and healthy wild fall Chinook destined primarily for the Hanford Reach
 - Majority of wild tule fall Chinook are destined for tributaries downstream of the Lewis River
 - High ratios of target upriver bright Chinook compared to small number of tule fall Chinook in Zones 4-5
 - Uses 9-inch minimum mesh size to avoid steelhead handle
 - 2009-2011 average Bonneville Dam counts during August 16-31
 - Chinook/steelhead ratio = 0.7 (1.4 steelhead per 1 Chinook)
 - Commercial fishery – based on on-board monitoring
 - Chinook/steelhead ratio = 20.0 (0.06 steelhead per 1 Chinook)
- Late September Upriver Bright Target Fishery
 - Conducted upstream of the Lewis River in Zones 4-5

Attachment 5.

- Most tule Chinook have moved into the tributaries by mid-September
- Uses 8-inch minimum mesh size to avoid steelhead handle
 - 2009-2011 average Bonneville Dam counts during September 16-30
 - Chinook/steelhead ratio = 3.2 (0.3 steelhead per 1 Chinook)
 - Commercial fishery – based on on-board monitoring
 - Chinook/steelhead ratio = 20.0 (0.06 steelhead per 1 Chinook)

Attachment 6.

2008-2017 Harvest Rate Schedule for Chinook in Spring Management Period							
Total Upriver Run Size ⁶	Snake River Natural Run Size ¹	Treaty Harvest Rate ^{2,5}	Treaty Catch Guideline	Non-Treaty Natural Harvest Rate ³	Non-Treaty Mortality Guideline	Total Natural Harvest Rate ⁴	Non-Treaty Natural Limited Harvest Rate ⁴
<27,000	<2,700	5.0%		<0.5%		<5.5%	0.5%
27,000	2,700	5.0%	1,350	0.5%	1,350	5.5%	0.5%
33,000	3,300	5.0%	1,650	1.0%	1,650	6.0%	0.5%
44,000	4,400	6.0%	2,640	1.0%	2,640	7.0%	0.5%
55,000	5,500	7.0%	3,850	1.5%	3,850	8.5%	1.0%
82,000	8,200	7.4%	6,068	1.6%	6,068	9.0%	1.5%
109,000	10,900	8.3%	9,047	1.7%	9,047	10.0%	
141,000	14,100	9.1%	12,831	1.9%	12,831	11.0%	
217,000	21,700	10.0%	21,700	2.0%	21,700	12.0%	
271,000	27,100	10.8%	29,268	2.2%	29,268	13.0%	
326,000	32,600	11.7%	38,142	2.3%	38,142	14.0%	
380,000	38,000	12.5%	47,500	2.5%	47,500	15.0%	
434,000	43,400	13.4%	58,156	2.6%	58,156	16.0%	
488,000	48,800	14.3%	69,784	2.7%	69,784	17.0%	
<p>1. If the Snake River natural spring/summer forecast is less than 10% of the total upriver run size, the allowable mortality rate will be based on the Snake River natural spring/summer Chinook run size. In the event the total forecast is less than 27,000 or the Snake River natural spring/summer forecast is less than 2,700, Oregon and Washington would keep their mortality rate below 0.5% and attempt to keep actual mortalities as close to zero as possible while maintaining minimal fisheries targeting other harvestable runs.</p> <p>2. Treaty Fisheries include: Zone 6 Ceremonial, subsistence, and commercial fisheries from January 1-June 15. Harvest impacts in the Bonneville Pool tributary fisheries may be included if TAC analysis shows the impacts have increased from the background levels.</p> <p>3. Non-Treaty Fisheries include: Commercial and recreational fisheries in Zones 1-5 and mainstem recreational fisheries from Bonneville Dam upstream to the Hwy 395 Bridge in the Tri-Cities and commercial and recreation SAFE (Selective Areas Fisheries Evaluation) fisheries from January 1-June 15; Wanapum tribal fisheries, and Snake River mainstem recreational fisheries upstream to the Washington-Idaho border from April through June. Harvest impacts in the Bonneville Pool tributary fisheries may be included if TAC analysis shows the impacts have increased from the background levels.</p> <p>4. If the Upper Columbia River natural spring Chinook forecast is less than 1,000, then the total allowable mortality for treaty and non-treaty fisheries combined would be restricted to 9% or less. Whenever Upper Columbia River natural fish restrict the total allowable mortality rate to 9% or less, then non-treaty fisheries would transfer 0.5% harvest rate to treaty fisheries. In no event would non-treaty fisheries go below 0.5% harvest rate.</p> <p>5. The Treaty Tribes and the States of Oregon and Washington may agree to a fishery for the Treaty Tribes below Bonneville Dam not to exceed the harvest rates provided for in this Agreement.</p> <p>6. If the total in river run is predicted to exceed 380,000, the Parties agree to consider increasing the total allowed harvest rate and to reinitiate consultation with NOAA Fisheries if necessary.</p>							

Select Area Sites

Washington

Deep River →

Cowlitz
River

Blind

Tongue Slough / Knappa
Point / South
Channel

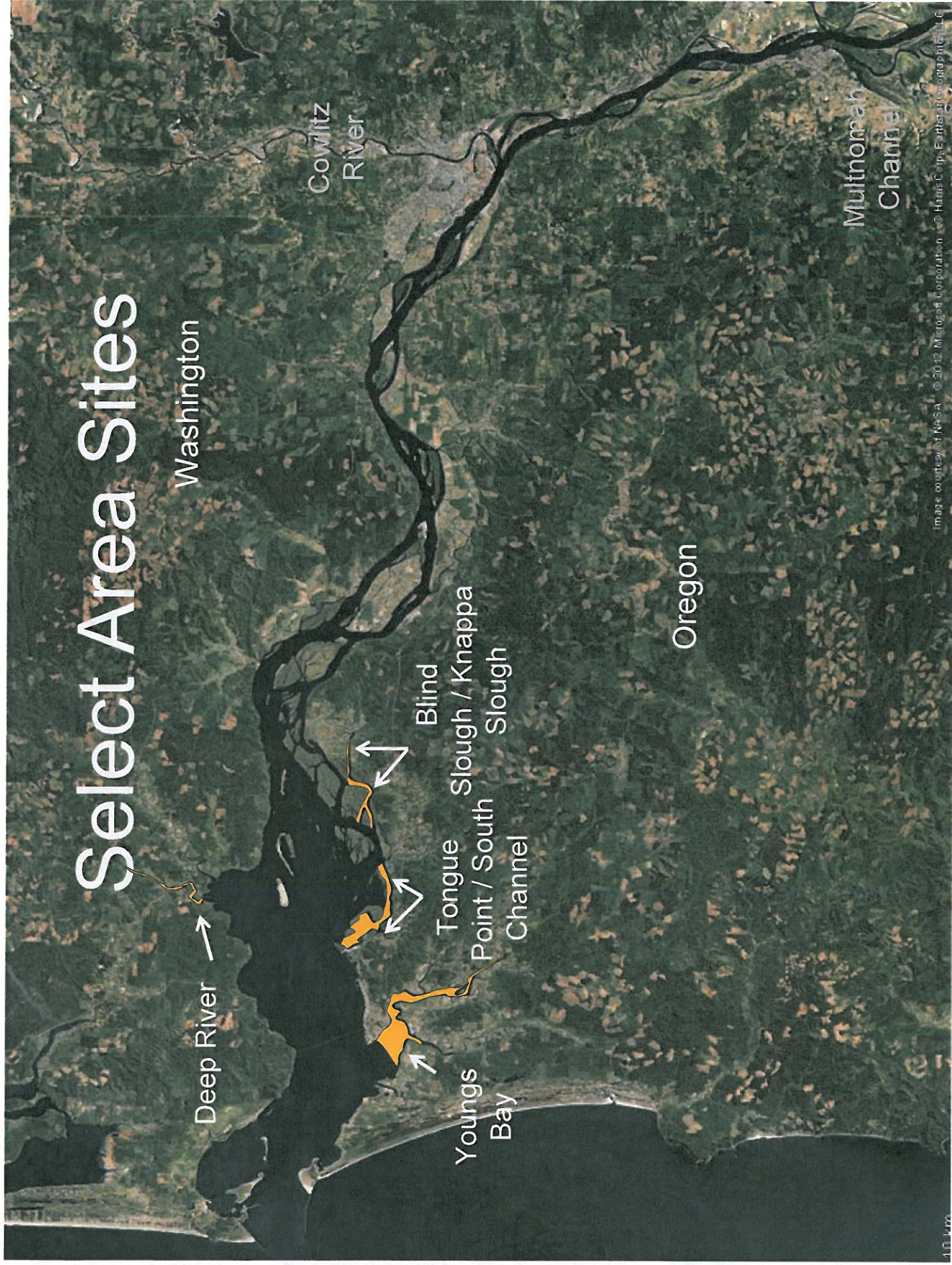
Youngs
Bay

Oregon

Multnomah
Channel

Image courtesy of NASA. © 2012 Microsoft Corporation. © Harris Corp. Earthstar Systems, LLC

10 km



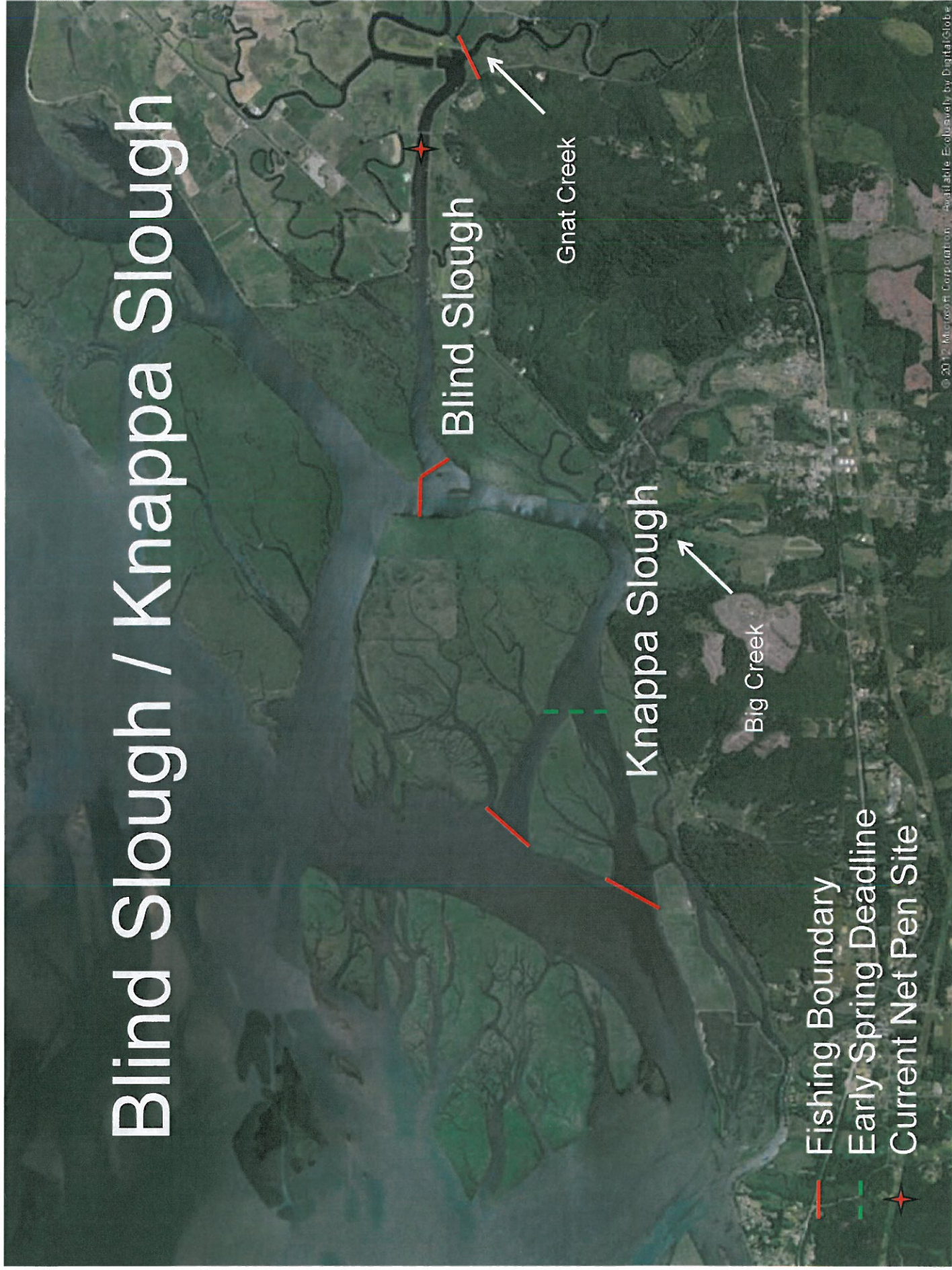


Tongue Point / South Channel

Tongue Point

- Fishing Boundary
 - - Spring Deadline
 - ★ Current Net Pen Site
- John Day River
- South Channel

Blind Slough / Knappa Slough





Attachment 8.

Summary of commercial fishing sites ranked as high priority during 1994-1996 terminal fishery evaluations. ¹				
			Site Type	
Implemented (current) Fishing Sites		Area (MI ²)	Terminal/Off-Channel	Comments
Youngs Bay		4.46	Terminal	Fisheries: February - October. Releases: spring Chinook; fall Chinook; coho.
Tongue Point/South Channel ²		1.74	Off-Channel	Fisheries: April - June; August - October. Releases: spring Chinook; coho.
Blind Slough/Knappa Slough (Big Ck.)		0.56	Terminal/Off-Channel	Fisheries: February - June; August - October. Releases: spring Chinook; fall Chinook; coho.
Deep River		0.3	Terminal	Fisheries: February - June; August - October. Releases: spring Chinook; fall Chinook; coho.
Non-Implemented Fishing Sites				
Cathlamet Channel		4.04	Off-Channel	Lacks significant unique water source for homing; high potential for impact to non-target stocks, relatively high catch of non-target salmonids in 1994-1996 test fishing.
Clifton Channel		1.22	Off-Channel	Lacks significant unique water source for homing; high potential for impact to non-local stocks, relatively high catch of non-target salmonids in 1994-1996 test fishing.
Grays Bay ³		1.02	Terminal	Eliminated from consideration due to potential log boom traffic, 1996. Expected sport / commercial interaction for spring, summer, and fall. High sturgeon catch in test fishery.
Wallace Slough		0.68	Off-Channel	Has significant unique water source to promote homing (Clatskanie R.); high potential for impact to non-local stocks, relatively high catch of non-target salmonids in 1994-1996 test fishing.
Implemented Fishing Sites (discontinued)				
Steamboat Slough		0.2	Off-Channel	Coho only, released from 1999-2004. Lack of significant unique water source for homing; insufficient harvest did not justify continuation.
¹ Twenty-five sites were initially evaluated for terminal fisheries potential of which nine were ranked high priority for implementation (not including Youngs Bay). Svensen Island site scored lowest among the high priority sites and was removed from consideration after initial ranking process.				
² South Channel was not included in Tongue Point/South Channel area estimate.				
³ Upper Grays Bay (easterly line from Rocky Point) was evaluated and ranked as part of the Deep River/Grays Bay proposed fishing area but was not implemented along with Deep River.				

Attachment 8.

Percentage of deliveries from Oregon Select Area sites made by Washington licensed fishers; all open seasons, 2009–2011				
	Youngs Bay	Tongue Pt./S. Channel	Blind/Knappa Sloughs	Pooled Oregon sites
2009	9.6%	14.9%	4.1%	9.0%
2010	11.1%	7.2%	2.2%	8.9%
2011	11.0%	3.2%	1.9%	8.9%
	10.6%	8.2%	2.3%	8.9%